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AUTHOR Lewis, Morgan; And Others
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ABSTRACT

Two factors likely to have an impact upon vocational education are the career plans of high school seniors and recent immigration into the United States. Analysis of recent literature pertaining to these two issues reveals that the educational reform movement is affecting all secondary education, with 45 States having already increased their requirements for high school graduation and 3 more considering similar action. The number of high school seniors who planned to acquire a bachelor's degree declined in the 1970s. Although undocumented aliens receive most of the attention, it was estimated that at least twice as many documented as undocumented aliens were residing in the United States at the time of the 1980 census. These factors make it imperative that vocational education demonstrate its contribution to the attainment of broad educational goals or risk being squeezed from the secondary curriculum. If fewer high school graduates go on to college and fewer acquire vocational training in high school, it is likely that enrollments in postsecondary vocational programs will increase dramatically in coming years. Major efforts must be directed toward improving the employment preparation of minority teenagers from disadvantaged families. (MN)

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FORCES AND FACTORS LIKELY TO INFLUENCE VOCATIONAL EDUCATION: CAREER PLANS AND IMMIGRATION

Morgan V. Lewis
Robyn A. Murry
Paul V. Unger

U.S. DEPARTMENT OF EDUCATION
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The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210-1090

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FOREWORD

A continuing responsibility of the National Center is to develop information for use by those who plan and direct vocational programs. One part of carrying out this responsibility has been an ongoing program of futures research designed to anticipate major influences that are shaping the environment in which vocational education will operate.

This is one of the reports of that futures research. It was produced with support from the Office of Vocational and Adult Education, U.S. Department of Education. The activities were carried out in the Evaluation and Policy Division under the direction of N. L. McCaslin, Associate Director. The staff responsible for the task consisted of Morgan Lewis, Research Scientist; Jeannette Fraser, Program Associate; and Robyn Murry and Paul Unger, Graduate Research Associates.

A draft of this report was reviewed externally by Norman C. Gysbers, Professor of Educational and Counseling Psychology, University of Missouri-Columbia, and Gregory Schmid, Senior Research Fellow, Institute for the Future, Menlo Park, California. It was reviewed internally by Steven Gyuro, Associate Director for Programs, and Robert E. Campbell, Senior Research Specialist and Professor of Psychology at The Ohio State University. These reviews were used to revise the report, but naturally the responsibility for its final content rests with the authors.

On behalf of the National Center, appreciation is expressed to each of these individuals for their contributions as well as to Judy Balogh and Janet Kiplinger, who provided the final editorial review of the report, and to Sherri Trayser and Mary Beth Dauner who performed the word processing.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

In 1984, the educational reform movement, which achieved National attention with the release of A Nation at Risk, gained momentum, and the Carl D. Perkins Vocational Education Act was passed. These two developments are likely to be the major influences on vocational education for most of the remainder of this century. The efforts at educational improvement, of which the new Perkins Act is a part, both reflect and attempt to respond to structural changes our economy is undergoing. This report provides information that planners and policymakers responsible for vocational programs can use to guide their decisions about the goals and conduct of their programs.

This report builds on a previous report that described a conceptual model of the environment for vocational education as well as presented basic information on trends in technology, the labor force, and vocational education. This report updates some of that information and also presents new information on the career plans of high school seniors and on recent immigration, both documented and undocumented, into the United States.

The information presented in this report is National in scope, and its relevance to particular States and localities must be evaluated in their specific contexts. Nevertheless, the following are some major trends that should be considered.

- The educational reform movement is affecting all of secondary education. Forty-five States have increased the requirements for high school graduation and three more are considering similar action.

- The number of high school seniors who planned to acquire a bachelor's degree declined in the 1970s. Comparing 1980 and 1982 to 1972, more males were planning to end their education at the high school level, and more females were planning to continue on to graduate and professional school.

- Although undocumented aliens receive most of the attention, there were estimated to be at least twice as many documented as undocumented aliens residing in the United States at the time of the 1980 census. Almost three-quarters (71 percent) of the undocumented aliens are estimated to be from nearby Latin American countries, with Mexico alone being the source of over half. The first generation of these immigrants appears to make little use of vocational training but serving their children will be a major challenge in those States where they reside, primarily California then New York, Texas, Illinois, and Florida.

Such an environment presents several major challenges to vocational education:

- o Vocational education must demonstrate that it contributes to the attainment of broad educational goals or risk being squeezed from the secondary curriculum. The program improvement funds provided by the Carl Perkins Act could well be used to enhance the general education component of secondary-level vocational programs. This will require new curriculum materials to reinforce basic communication and computational skills in an occupationally relevant context. More than this, however, it is likely to require extensive inservice preparation of instructors to increase their proficiency and confidence to strengthen basic skills.

- o If fewer high school graduates go onto college and fewer acquire vocational training in high school because of the increased academic requirements for graduation, there are likely to be sizeable increases in postsecondary vocational enrollments in coming years. These increases will come not only from recent high school graduates but also from adults seeking upgrading in present skills and retraining in new occupations.

- o Major efforts must be directed to improve the preparation for employment of minority teenagers from disadvantaged families. Our Nation risks the development of a sizeable underclass frustrated and alienated from the main society and unable and unwilling to live by its rules. Past efforts have not reduced teenage unemployment. New approaches and more sustained efforts are needed. Spanish-speaking young people, who are literate in both English and Spanish, are a valuable National resource and should be developed as such.

CHAPTER 1

OVERVIEW OF THE ENVIRONMENT

Introduction

Vocational educators face a dilemma: technological innovations and structural changes in the economy are influencing the skills needed in the work force at a pace never experienced before. This very pace makes it extremely difficult to identify the skills that should be taught. Never has anticipation been more necessary and never has it been more difficult.

In addition to the accelerated pace of change in occupational skills, vocational education is being buffeted by a number of other trends. Probably the most prominent of these is the emphasis on increasing the communication, computational, and scientific skills of high school students. This emphasis was heightened by the various reports of commissions and task forces that appeared during 1983. The almost simultaneous appearance of these reports seemed to reflect a widespread National concern about the rigor of secondary education. Virtually all these reports look to education as a way to enhance the position of the American economy in international competition, but very few acknowledge a role for vocational education.

As difficult as anticipating the future is, vocational educators must still try. Failure to anticipate involves an implicit assumption that current conditions will continue--an assumption the conditions themselves belie. This report is the second in a series that attempts to help vocational educators in the difficult but essential task of anticipation. It presents basically what in futures research is referred to as an "environmental scan." Such a scan monitors the general environment to detect developments that are important to the specific environment of a given organization or institution. This scan focuses on the environment for publicly funded vocational education.

Since this environment is obviously a very complex one, some method was needed to limit the sources that would be examined. The method chosen was the development of a heuristic model of the environment that is presented in figure 1-1. This model was developed during the first year of the project and a full discussion of it is presented in the first report of this project (see Lewis, Fraser, and Unger 1984).

This model was used to guide the monitoring activities carried out in the past year. The sources previously identified were reviewed to detect developments that could be of significance to vocational education. The appendix to this report lists the sources that were regularly reviewed. The information from

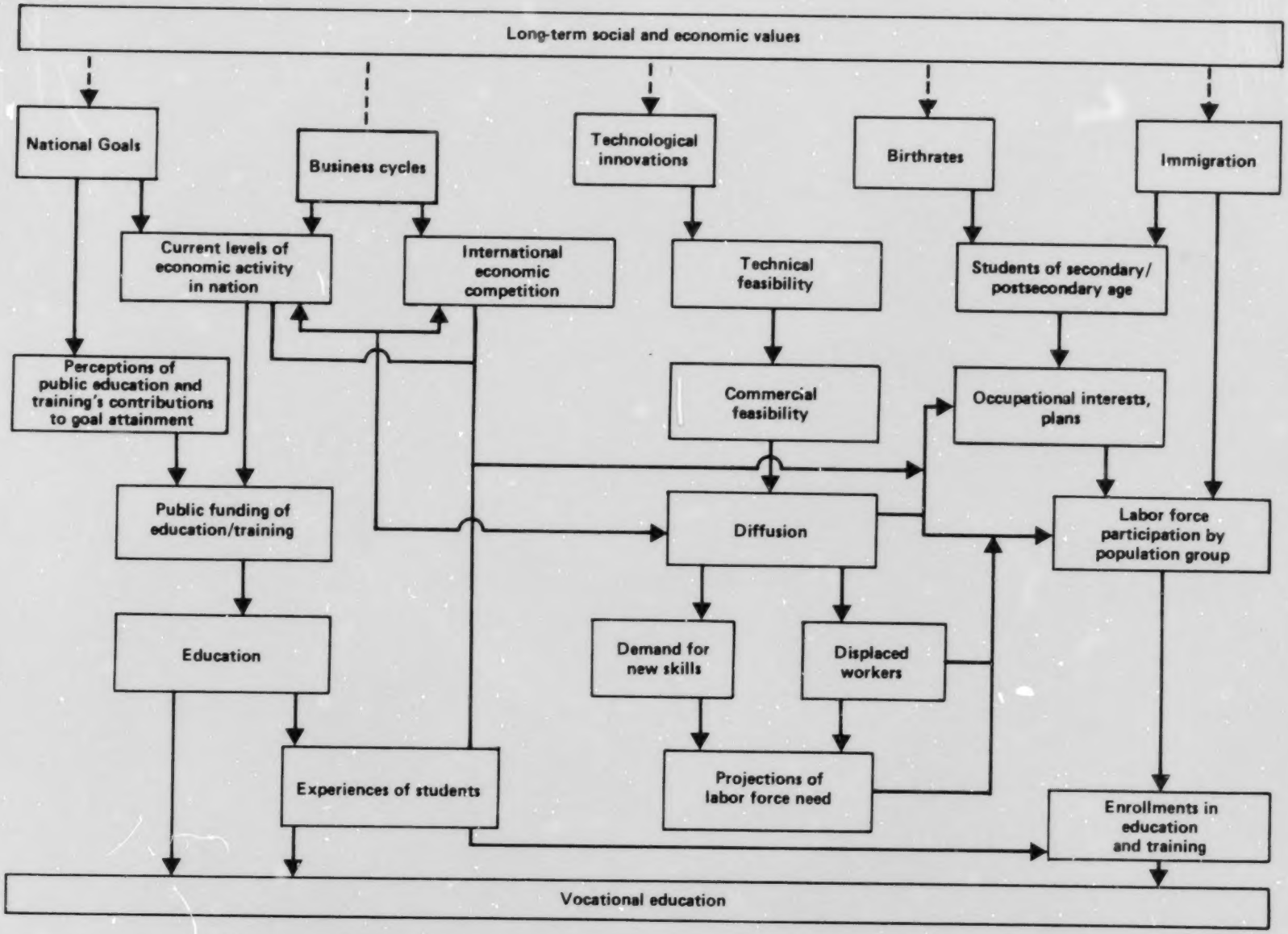

Figure 1-1. Major influences on public education and training programs

these sources judged most important for vocational education was abstracted, categorized, and synthesized and is presented in this report. This process is essentially a subjective one.

To increase the number of individuals assessing the implications of the information, a small convening was held with selected staff from the National Center. These individuals were given abstracts of the information assembled during 1984 and their judgments of its significance were obtained. The implications that received the most consensus are presented in this report.

In addition to monitoring the areas reported on previously, two new topics were examined this year: the career plans of high school graduates and the possible effect of immigration on the need for vocational training. Information on career plans was assembled to determine if there has been a decline in the proportion of high school students who plan to enter college. If fewer students have college plans, this could increase demand for vocational programs both at the secondary and postsecondary levels. The longitudinal surveys conducted by the National Center for Education Statistics, U.S. Department of Education, provided most of the data on career plans and early educational and employment experiences. Immigration was studied to determine if the increases experienced in recent years--particularly the estimated increases in undocumented aliens--would affect the need for or the methods of delivering vocational instruction. The major sources for this information were the Immigration and Naturalization Service, U.S. Department of Justice, and the Bureau of the Census, U.S. Department of Commerce.

The remainder of this chapter presents an overview of the environment for vocational education, organized according to the three major sectors of the model:

- Economy and the government
- Technology
- Demography and the labor force

This overview updates discussions and information on these sectors that were presented in more detail in the previous report. Chapters 2 and 3 present the information assembled in the past year on career plans and immigration.

The Environment for Vocational Education

The Economy and the Government

As everyone knows, 1984 was a very good year for the economy. Economic activity, as measured by the gross National product, increased at a real, inflation-corrected rate of 6.8 percent, one of the best rates since World War II.* Contrary to previous expansionary periods, this growth was achieved without a rekindling of inflation. The annual rate held at 4.2 percent, virtually the same as in 1983. Unemployment declined to 7.2 percent in December 1984 and received relatively little attention, although this would be considered quite high by most post-war standards.

Two dark clouds on this sunny horizon are the Federal deficit and foreign debt. Both of these far exceed anything in past experience, and consequently, most of their potential impacts are very hard to anticipate. One impact of the deficit, however, is quite obvious--debt service. Unless action is taken quite soon to reduce the deficit, interest on the debt will become the single largest item in the Federal budget. It will even exceed defense expenditures.

Payment on the debt has priority over other Federal expenditures. The Federal Reserve Board is likely to follow a fairly tight policy on money growth to continue control of inflation. This will force the Federal Government to borrow to meet its obligations. Federal borrowing will push up interest rates and restrict the capital available for private sector investment. This, in turn, will limit the extent to which American manufacturers can automate their production processes. Because of higher wages in the United States, it is only through increased automated production that many of our products can compete in international markets.

High interest rates in the United States also raise the value of the U.S. dollar in comparison to foreign currencies. All of these factors combine to produce trade imbalances such asthose we are currently experiencing. If the deficit is not

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*All figures are preliminary and are taken from news releases from the U.S. Department of Commerce and the U.S. Bureau of Labor Statistics.

lowered significantly, it is likely that imbalances will become even more severe.

The consequences of this economic climate affect vocational education in two ways. On the one hand, vigorous economic growth produces a demand for trained workers. Growth makes it easier to place graduates, convince employers to participate in cooperative education, and provide specialized training for specific firms. On the other hand, administration and congressional attention is focused on ways the Federal deficit can be reduced. This attention translates primarily into a search for politically acceptable ways to cut spending or increase revenues.

In such a climate, it seems very unlikely that vocational education will receive any real increase--an increase in excess of inflation--in Federal appropriations for the next few years. Furthermore, as other Federal domestic programs are cut or eliminated, there will be pressure on State and local sources to provide services that were previously paid for with Federal funds. Education benefited in 1984 from the reform movement stimulated by the several reports of various task forces and commissions. Many Governors have made educational improvement a key priority for their States. Given the pressures on Federal and State budgets, however, it seems unlikely that education will continue to receive significant increases once the current attention it is receiving fades.

Even in the current climate, many vocational educators are concerned that the reform movement is ignoring vocational education. Most of the efforts to increase educational quality have focused at the secondary level. These have taken the form of increases in the academic requirements for graduation--more English, mathematics, and science. These increases are making it difficult for students to choose vocational courses. It is especially difficult if these courses are offered at shared-time vocational centers away from the students' home high schools.

There have been two major responses to this concern. One was the report Education for Tomorrow's Jobs (Sherman 1983) prepared by the National Academy of Science. The other was the report of the National Commission on Secondary Vocational Education (1984), The Unfinished Agenda: The Role of Vocational Education in the High School. Both of these present evidence and a rationale for the continuation and strengthening of secondary vocational programs. Education for Tomorrow's Jobs primarily bases its rationale on meeting the labor force needs of a rapidly changing economy that will require higher skill levels. The Unfinished Agenda addresses the problem of serving students who differ widely in ability and interests. It argues for maintaining options in the high school curriculum to meet the varying

needs of all students. Whether the message of these reports will be heard amid the many calls for higher academic standards remains to be seen.

Despite all the attention given A Nation at Risk (National Commission on Excellence in Education 1983) and the other reports, the public's support for vocational education held firm. This support is most clearly revealed in the annual Gallup Poll on Attitudes toward the Public Schools published each year in the September issue of the Phi Delta Kappan. The 1981 Gallup Poll reported that 64 percent of the respondents felt that students not planning to continue their education should receive vocational training in high school. In the 1984 report--after all the reports on secondary education cited the need for more "basics"--this figure increased to 83 percent. There was also an increase in support for vocational courses for those planning to go to college, from 34 percent in 1981 to 37 percent in 1984.

The most significant direct impact on the environment for vocational education in 1984 was the passage of the Carl Perkins Vocational Education Act (P.L. 98-524). This act was passed 3 years after it was originally scheduled for renewal, and those 3 years witnessed a continuing debate over the performance of vocational education and the Federal interest in it. The new legislation narrows and focuses the Federal role to emphasize program improvement and service to populations with special needs.

The Perkins Act incorporates provisions to deal with other major factors influencing the environment for vocational education: the emphasis on increasing the quality of all education, structural change in the economy, and technological change. One of the specific purposes of the act is to "improve the academic foundations of vocational students and to aid in the application of newer technologies (including the use of computers) in terms of employment or occupational goals" (sec. 2(4)). This is the first time that enhancing academic skills has been explicitly stated as a purpose of vocational education in Federal legislation. The legislation also has specific sections on adult training, retraining, and employment development (sec. 321-323, 415) and industry-education partnership for training in high-technology occupations (sec. 341-343).

The increased targeting of Federal funds and the elimination of expenditures for program maintenance will cause many adjustments in State programs. The legislation places strong emphasis on ensuring that programs for the economically disadvantaged and dislocated workers are coordinated with programs conducted under the Job Training Partnership Act (P.L. 97-300).

Technology

The spread of automated equipment in both factories and offices continued at a rapid pace in 1984. The robotics industry was somewhat slow to respond to the economic recovery that began in 1983 but experienced strong growth in 1984. The number of robots in use nearly doubled from 7,000 in 1982 to 13,000 (Burnstein 1984, Gauvin 1985). In 1982, 50 percent of all robots were in the automobile industry compared to only 35 percent in 1984. The profitability of individual robotics firms continues to be questionable because of tough competition in the industry. In general, however, the industry continues to experience large growth rates. One of the chief reasons for this increase is the continued lowering of robot prices. In 1983, the average price of a robot was $74,100. By the second quarter of 1984, the average price per robot had fallen to $59,100.

Barriers to an increased use of robots include lack of standardization that causes incompatibility across manufacturers and inadequate sensing capacity. The conservative projection of robot usage presented in the previous companion report (Fraser, Unger, and Lewis 1984) of 50,000-100,000 robots in use by 1990 still appears to reflect the probable situation better than the more widely publicized, humanless factories hypothesis.

The office automation industry also continues to experience growth. Personal computers, word processing systems, and copier-duplicators continue to lead the equipment list most likely to be purchased by companies ("1985 Annual Readers' Forum"). Almost 2 million personal computers were installed in 1983. By 1988, the number of electronic keyboards is expected to surpass the number of white-collar workers ("Information Systems" 1984).

Advances in custom, proprietary chips for specific machines (Steinbrecher 1985) may have a significant impact on the basic structure of the personal computer industry. By 1986, these new advances will make it cheaper and easier for manufacturers to create chips that will make the proprietary machines operate faster and more efficiently. Such chips seem likely to drive the market into the dominance of two or three vendors. Compatability between machines will be more difficult and many manufacturers who produce chips that can be used with many machines may be driven out of the marketplace.

The greatest barrier to more rapid growth in integrated offices is not related to technology but rather to the management of organizations. The current fractionalized decision-making process within organizations and the overabundance of alternatives available to automate offices often leave decision makers bewildered about the proper direction for their office (Hughes 1985). Lacking a clear direction, executives often fail to make

the necessary decisions about integrating the office information system. Until internal decision-making structures can respond with a clearer direction, the integration of the office environment will continue to lag behind the available technology.

With the increases in the strength of the U.S. economy, technology has remained a focus of U.S. public policy at both the Federal and State levels. At the Federal level, the passage of the Productivity and Innovation Act (P.L. 98-462) has facilitated the establishment of high-technology research consortia. These consortia consist of private firms banding together in joint research ventures to eliminate wasteful duplication of effort and to speed up technology transfer. The major obstacle to such ventures, the antitrust law, was removed with the passage of P.L. 98-462 in October 1984. Today, consortia are being formed to engage in joint research ventures in fields such as semiconductors, chemicals, television equipment, and fiber optics.

At another level, many States are linking economic development strategies with the transfer of advanced technologies to the private sector. For example, Pennsylvania has established the Ben Franklin Partnership to encourage "joint research and development, education, training, and retraining and entrepreneurial development efforts between higher education and the private sector" (Thornburgh 1984, p. 11). In their first full year of operation, four Advanced Technology Centers set up under the Partnership funded 220 applied technology projects valued at $38 million.

Taking a different approach, the State of Illinois has enacted the Prairie State 2000 Fund (1985) Act. The purpose of this act is to improve the overall quality of the skills in the labor market through job training activities. Of the six goals of the program, one specifically addresses the need to "attract and respond to the skill requirements of new technologies and economic development opportunities" (p. 1).

The overall health of the economy has spurred research and development investment of the private sector in 1984. This increase in investment will not realize any gains for the economy in the short run; however, the long-term effects of renewed investment in R&D will help to improve our Nation's competitive position in international markets in the future.

One barrier to more aggressive marketing of U.S. products is an agreement among the Western Alliance nations that bans the export of any technology or product that might bolster the Soviet military machine, either directly or indirectly. Tight restrictions are placed on the sale of personal computers. The more powerful the system, the more highly controlled is its export. The transfer of technology used to build computers is banned

outright, as is the export of any computer intended for use in the design and manufacture of integrated circuits. A license is required for the export of software for similar applications.

Demography and the Labor Force

The labor force is growing at a slower pace in the 1980s than it did in the 1970s. Over the 1970s, in response to the baby boom and increased labor force participation by females, the labor force grew at an average rate of 2.8 percent.* Now in the mid-1980s, the impact of the baby boom has largely been absorbed, and the rate of growth in 1984 was 2.0 percent. Such a difference, 2.0 compared to 2.8 percent, may not seem like much, but 0.8 percent of the December 1984 labor force represents 930,000 workers. The total labor force at the end of 1984 was 116 million people working or seeking work.

The participation of women in the labor force increased in 1984 by 0.7 percentage points. In December 1984, 53.9 percent of all women 16 years of age and over were working or looking for work. Although they continue to increase their labor force participation, women are doing so at a slightly slower rate that contributes to the slower growth of the labor force.

Immigration continues to be a significant but poorly measured source of growth in the American labor force. Chapter 3 of this report examines in detail the best current estimates of the number of undocumented aliens residing in the United States at the time of the 1980 census. This estimate yielded a total of about 2 million such aliens, predominantly from Mexico (55 percent) and residing in California (50 percent). How many undocumented aliens enter the United States in any 1 year is unknown, but in 1983, over 1.25 million illegal aliens were apprehended in this country. Almost all of these (94 percent) were from Mexico.

The number of legal aliens admitted to this country in 1981 was 597,000. To put this figure in perspective, the total growth in the labor force that same year was 1.8 million, and the number of high school graduates both public and private was 3.0 million. Obviously, not all immigrants or graduates immediately enter the labor market. Nevertheless, since most legal aliens are of working age and since virtually all illegal aliens come to the United States seeking work, immigration is a major source of new workers.

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*Historical data in the following discussion are drawn from the Employment and Training Report of the President and current data from "The Employment Situation: December 1984" a news release from the U.S. Department of Labor, Bureau of Labor Statistics.

The most discouraging labor force statistics in 1984 continued to be those for minority teenagers. In the 1950s, prior to President Johnson's attempts to fashion the Great Society, teenage unemployment averaged about three times the rate for adults, and the rate for minority teenagers was a few percentage points higher than that for whites. Since the mid-1970s, after many of the Great Society initiatives were institutionalized, the teenage rate has remained about three times the rate for adults, but the rate for minority teenagers is almost three times the rate for white teenagers. In December 1984, teenage unemployment for whites 16-19 years old was 15.9 percent and for blacks it was 42.1 percent.

Labor force participation rates show an even more discouraging pattern. Prior to the Great Society, white and minority participation rates were virtually identical. Since the Great Society, white participation has increased and minority participation, especially among males, has declined. In December 1984 the participation rate among whites 16-19 years old was 57.3 and among blacks it was 39.3.

Couching the discussion in these terms implies that the programs of the Great Society may have caused these deteriorating statistics for minorities. Such an analysis is far too simplistic. Many minority group members benefited substantially from the civil rights and educational initiatives of the past 20 years. In 1982, for example, average educational attainment among young blacks and whites was virtually identical (12.7 years for blacks compared to 12.8 years for whites (U.S. Bureau of the Census 1983). Also, minority group members who completed high school in 1980 were by 1982 almost as likely as whites to have continued their education (National Center for Education Statistics 1984b). Nevertheless, it must be acknowledged that during a period when the educational attainment of many minority youth increased substantially, their success in the labor market fell markedly. Clearly, there are serious flaws in the way our society prepares many minority youth for employment, particularly those from disadvantaged environments. We risk developing a sizeable underclass cut off from accepted avenues of success and alienated from the main society. A glance at the characteristics of the inmate population in our prisons indicates that the development of such an underclass has well begun. Whether we have the wisdom and the will to reverse these trends remains to be seen.

CHAPTER 2

CHANGES IN CAREER PLANS DURING THE 1970s

Vocational education is an elective program at all educational levels. As such, its ultimate strength and vitality are dependent on its ability to attract students. This ability rests on how well programs serve students. Students will not long continue to choose elective courses that do not meet their educational and occupational objectives.

This chapter examines how the career goals and plans of high school students changed during the 1970s. To do so, it draws primarily upon the two longitudinal studies of high school students that were started in 1972 and 1980. The 1972 study is usually referred to as the Longitudinal Study of the High School Class of 1972, and the 1980 study as High School and Beyond. Both of these studies are directed by the National Center for Education Statistics and ask identical questions, thus permitting comparisons across similar groups over time. The follow-up data that have been collected periodically also enable longitudinal comparisons to be made.

To put these comparisons in a theoretical perspective, an overview of the major tenets of career development theory are presented. Changes in the aspirations and expectations of high school during the 1970s are then discussed. The final section examines factors that may influence the decision to take vocational programs.

Career Development

What Is a Career?

Career decision making is no longer seen as a choice made at a single point in the life of any individual. It is a continual developmental process. Educational experiences are but one set of many potential influences that can impact the career choices of individuals over an extended period of time. The meaning of career guidance has evolved from "matching" people to occupations to a more evolutionary, developmental process (Montross and Shinkman 1981; Osipow 1983). The multidimensional concept of a career predisposes a multifaceted definition. In the popular sense, a career is directional, evidenced by advancement. This implies that positions not leading to advancement are not careers. The National Vocational Guidance Association, however, defines a career as the totality of work accomplished during one's lifetime, regardless of occupation or level (Sears 1982). All persons who work, in paid or unpaid positions, have careers. A definition of career must also consider, in addition to the

work history, the way a person experiences his or her work and how aspirations, satisfactions, attitudes, and self-concepts change (Hall 1976).

In attempting to understand and predict the educational and career aspirations and expectations of secondary and postsecondary individuals (ages 14-25), attention needs to be given to the objective and subjective components of their decisions. The focus needs to include the process as well as the product. The developmental stage approaches to career vocational development, like those of Miller and Form (1951), Super (1953), and Ginzberg et al. (1951), focus on this process. Ginzberg (1984) provides a synthesis of these approaches to career development. He states that occupational choice is a lifelong process of decision making, at least for persons who seek occupational satisfaction. This search for satisfaction leads them to repeated reevaluation of how they can improve the match between changing career goals and the realities of the working world. Vocational education can benefit from insight into the stages and tasks confronting individuals during their secondary and postsecondary education and work experiences. An education program whose basis is career development theory should recognize the framework into which the secondary years fit, recognize and emphasize individual differences, and foster creativity that would promote essential exploratory and autonomous behavior (Super 1984).

Career Development Theory

Perhaps the most comprehensive theory of career development is that of Donald Super (1957). Building upon the life stage theory of Charlotte Buehler (1933), Super interrelates the phases of career development to life stage theory and posits that career tasks are a reflection of larger life tasks.

In his longitudinal study of career development, the career pattern study (Jordaan and Heyde 1979), Super focuses mainly on two stages of vocational development, each having several substages (see table 2.1). The process of career orientation begins in late childhood in the exploratory stage. The child begins to probe and question tentatively (tentative substage). During adolescence the individual begins to recognize the importance of career decisions (transition substage), and moves into a period where educational and preliminary career decisions are made and tested (uncommitted trial substage). This is a time of exploration (hence, the label for the stage) and seeking of career direction. During the subsequent establishment stage, the young adult evaluates his or her educational and career decisions, modifies or crystallizes them (committed trial substage), and then, in a more mature sense, elaborates and builds on those decisions (advancement substage). Thus, in the establishment

TABLE 2.1

VOCATIONAL LIFE STAGES OF SUPER'S CAREER DEVELOPMENT THEORY

STAGE	SUBSTAGE	DEVELOPMENTAL TASK	TASK SPECIFICATIONS	BEHAVIORAL COMPONENTS
GROWTH (0-14)	o Fantasy o Interests o Capacity		o Develop self-concept through identification with key figures o Express dominant needs o Allow preferences to determine aspirations	o Increasing social participation and reality testing
EXPLORATORY (15-24)	o Tenative o Transition o Uncommitted trial	Crystallization (14-18)*	o Formulate ideas about appropriate work o Develop occupational and self-concepts that temper vocational choice with relevant educational decisions	o Planning and utilizing concept for determining actions regarding present and future goals, values and preferences
		Specification (18-21)	o Narrow career direction o Take steps to implement career decisions	o Same as Crystallization as related to specification of career
		Implementation (21-24)	o Complete training o Enter relevant employment	o Recognizing need to plan for implementation of career plan and execution of plan
ESTABLISHMENT (25-44)	o Committed trial o Advancement	Stabilization (25-35)	o Settle down in field of work	o Demonstrating appropriateness of previous career decisions through utilization of talents
		Consolidation of status and advancement (35-45)	o Develop skills and seniority to establish a secure and comfortable vocational position	o Same as Implementation and Stabilization
MAINTENANCE (45-64)			o Hold onto the place one has made in one's occupation	
DECLINE (65-75+)	o Deceleration o Retirement	o Readiness for retirement and decline	o Change individual role from participant to observer	

SOURCE: Compiled from Super et al. (1963), Hall (1976), and Osipow (1983).

*Ages are "typical." Tasks can ocur at any time.

stage, the direction received in adolescence is translated into training, job seeking, and moving toward a secure place in an occupation (Osipow 1983). Not everyone, of course, passes directly through each of these stages. Some individuals move from one job to another and have multitrial occupations.

The recognition that there are often multiple periods of choice and adjustment is a new concept in Super's theory (1984) labeled "recycling." Movement from one stage to another involves a transition, which is where recycling appears. Individuals in transition experience a "minicycle" of the major stages. For example, individuals entering new jobs go through a growth period, a time of exploration, then a time of establishment and maintenance if the jobs are deemed satisfactory. As growth continues, decline or disengagement can occur, especially when a job or occupational change is imminent. These periods of trial and transition vary, as do the age limits of the stages, and they denote periods of recycling. In a period of rapid structural change in the economy, it is likely that recycling will become more common.

The movement across the career stages involves five vocational development tasks. These can occur at any age but typical ages are suggested. The tasks corresponding to the 14-25 age group are crystallization, specification, and implementation. During crystallization (ages 14-18), individuals formulate an idea of what occupations are appropriate for them, given their perceptions of themselves and their understanding of the requirements of the occupations, and they evaluate their career preferences against the requirements for entering preferred occupations. The corresponding behavioral component of this task involves the concepts of awareness, formulation, and planning that will be utilized in the remaining tasks. Super (1984) contends that the mode of adjustment utilized during one period of life is fairly predictive of the mode of adjustment a person will use during subsequent periods.

During the specification task (ages 18-21), career choices are narrowed and steps are arranged to carry them out. The behaviors required for successful accomplishment are still concept oriented, but in terms of specification of career preferences rather than crystallization of interests.

The third task is implementation (ages 21-24), during which the individual follows through on the necessary training and applies it in a training-relevant job. Obtaining the necessary training and executing a plan of action are the behavioral components.

High school vocational education typically occurs during the tentative substage when the individual tests his or her interests

and different occupations. During this period it is not surprising to see low levels of commitment to particular occupational areas. If an individual is unable to find a suitable match, this exploratory behavior may persist after high school and be reflected in a series of quite different jobs or a movement between varied jobs and educational training programs.

Aspirations and Expectations

Aspirations and expectations provide an orientation or focus for career choices. Individuals must continually compare the kinds of occupations they would like to have against their assessment of whether they have, or can acquire, the skills and preparation necessary to enter these occupations. The results of these comparisons often result in plans for occupations that require fewer skills or preparation than the occupations to which they aspire. During the age period of 15-24, described earlier as the exploratory stage, the educational system is in a position to facilitate the process of comparing aspirations with the possibilities of attainment. The developmental tasks and their specifications relevant to this stage focus on the development of appropriate expectations with respect to one's strengths and weaknesses and the implementation of career decisions based on the actions necessary to obtain relevant employment. Super's conceptualization of career decision making encourages experimentation and facilitates productive career exploration at a time in life when trial and change are not as risky and potentially detrimental as they may be later in life.

Defining Aspirations and Expectations

The interchangeable usage of the terms aspiration and expectation often creates difficulty, both in interpreting information using these terms and also in assisting young people in making realistic career decisions. Webster's New Twentieth Century Dictionary (1971) distinguishes between an aspiration and an expectation as follows: An aspiration is "an ardent wish or desire, particularly for advancement, honor, etc." (p. 111). An expectation is "looking forward to an event about to happen," (p. 644). Aspiration differs from expectation in that the former is based on desire and may exist with little or no reason to believe the desired event will happen, whereas an expectation is more reality based. This distinction is important, not only for interpretation, but for career development counseling as well. Aspirations and expectations should be identified and distinguished, attainment potential evaluated, and efforts focused on reducing the discrepancy between these two through educational and hands-on experiences.

The realism of one's educational and career choices is reflected primarily in the discrepancy between expressed desires and expectations (Freeberg and Rock 1975). When educational and occupation aspirations far exceed expectations as a result of unrealistic efforts compared to desires, persons are more likely to be dissatisfied with the social and occupational roles they must assume.

Stability of Expectations

There is some question as to the stability of expectations. Rumberger (1981) contends they are unstable and fluctuate due to changes in internal, individual preferences or external circumstances such as a changing labor market. Hotchkiss and Chiteji (1981) argue that expectations tend to be stable in the long run, changing little over time. The stability of expectations may not be the central issue as much as the realism of expectations, reflected in the match between one's aspirations and expectations. As one progresses through the stages of career development, as depicted by Super (1953), there is a movement toward convergence of one's aspirations and expectations. The fact that not everyone successfully passes through these stages and finds convergence may reflect an inaccurate (e.g., unrealistic) assessment of the skills, preparation, costs, and availability of the resources to facilitate realization rather than a lack of stability. Fluctuation is normal, indeed necessary, within the developmental process. Blau et al. (1956) has proposed that occupational choice represents a "compromise" between ideal preferences and actual expectations. These should integrate both past experiences and the personal environment of each individual. In view of this, instability may not be an appropriate term to apply.

Curriculum has been shown to have an impact on the match between aspirations and expectations. Freeberg and Rock (1975) report that students make a fairly realistic match as reflected by moderate relationships between achievement levels and desires and plans. In their data, males were more realistic than females and those in an academic curriculum evidenced a better match between educational aspirations and expectations than participants in general and vocational curriculums. Participants in general and vocational curriculums were more likely to aspire to an educational future that did not coincide with their intended actions.

Contrary to the frequent assertion that participating in a vocational curriculum depresses education aspirations, Campbell et al. (1982) found the effects are at worst neutral and may even be positive. They also report that participation in an academic curriculum did not increase aspirations. In fact, these students were more likely to have downgraded their aspirations 3 years

later. In this same study, Campbell et al. replicated the common finding that young people tend to aspire more highly than they are likely to attain. As they gain experience and awareness of the realities of attaining these goals, these aspirations are moderated, just at career theory predicts. Campbell et al. found this moderation, however, only for occupational, not for educational, aspirations. The authors feel there is no readily obvious interpretation of these opposite trends. They suggest that they reflect schooling as an alternative in a slack labor market and that further investigation is necessary. Although an overall decrease in occupational aspirations and attainment was evidenced, the causes were not clarified within the scope of Campbell's study.

Postsecondary Plans and Changes

What are the aspirations and expectations of secondary school students in relation to their postsecondary plans? Have they changed and, if so, how? In determining the postsecondary plans of secondary school students and how they have or have not changed, two databases from the National Center for Education Statistics (NCES) are the primary sources: the National Longitudinal Study of the Class of 1972 (NLS-72) and High School and Beyond (HS&B). Both of these are longitudinal and, as much as possible, explore the same issues and gather the same information. These two databases permit the comparison and examination of differences between high school seniors in 1972 and those in 1980. Follow-up studies of the 1972 seniors have been conducted periodically, up to 7 1/2 years after high school, permitting determination of what has actually happened regarding their postsecondary plans and goals. The HS&B data set is not old enough, at present, for examining if students have carried out their longer term plans; however, it does provide useful short-term (i.e., 2 years after graduation) information.

In a preliminary analysis of the HS&B data set conducted at the National Center for Research in Vocational Education, high school seniors' aspirations are shown to have shifted between 1972 and 1980. The biggest changes are the declines among seniors who planned to stop their education when they obtained bachelor's degrees. More were planning to continue on to graduate or professional school, a few more were planning to attend postsecondary institutions below the 4-year level, and among males, more were planning no additional education after high school.* The National Center for Education Statistics (NCES 1984a) reports similar shifts (see table 2.2).

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*Paul Campbell, Senior Research Specialist, The National Center for Research in Vocational Education, personal communication, January 1985.

TABLE 2.2

EDUCATIONAL EXPECTATIONS OF
HIGH SCHOOL SENIORS, 1972-1982

	All Seniors			Males			Females		
	1972	1980	1982	1972	1980	1982	1972	1980	1982
Less than high school graduation	2.2%	0.4%	2.5% (2.8)	2.4%	0.6%	2.9% (3.2)	2.0%	0.3%	2.1% (2.3)
High school graduation only	16.7	19.4	18.0 (19.8)	13.1	20.4	21.0 (23.0)	20.2	17.9	15.1 (16.7)
Vocational, trade, or business school	18.0	19.6	19.1 (21.0)	17.4	20.1	20.0 (21.9)	18.6	18.9	18.3 (20.2)
Junior college	12.8	15.1	16.5 (18.2)	11.5	11.7	13.8 (15.1)	14.1	18.1	19.2 (21.2)
Four-year college or university	37.6	25.3	19.1 (21.0)	39.2	26.0	18.4 (20.2)	36.0	25.1	19.8 (21.9)
Graduate or professional school	12.6	20.2	15.6 (17.2)	16.3	21.2	15.1 (16.6)	9.1	19.8	16.1 (17.7)
Don't know	--	--	9.1	--	--	9.8	--	--	9.4

SOURCE: National Center for Education Statistics (1984a, p. 158).

NOTE: For a more accurate comparison, the 1982 percentages (in parentheses) have been recalculated, eliminating the "don't know" option.

With respect to short-term plans, Peng, Fetters, and Kolstad, in a 1981 NCES capsule description of 1980 high school seniors, report little change between 1972 and 1980 in terms of the activities that seniors anticipated would take the greatest proportion of time in the first year after high school. Approximately 80 percent of the seniors planned to pursue some form of postsecondary education. The 1980 seniors shifted slightly away from 2-year to 4-year institutions. Fetters, Brown, and Owings (1984) report this same result and suggest that the decrease in the percentage of students attending 2-year institutions possibly reflects a wording change in questions from 1972 to 1980 that may have led more 1980 students to consider work their full-time activity after high school. At any rate, seniors who reported they planned to work full-time in the year after high school increased from 26 percent in 1972 to 30 percent in 1980.

In a follow-up of the 1980 seniors 2 years after high school, NCES (1984b) reports that 63 percent actually entered some form of postsecondary education (table 2.3). Of this 63 percent, the majority attended 4-year institutions. Self-reports of high school curriculum were associated with varying rates of postsecondary attendance. The percentages enrolled from academic, general, and vocational-technical curriculums were 86, 55, and 44 percent, respectively. Most from the academic curriculum went to 4-year colleges, the general curriculum students enrolled almost equally in 2- and 4-year colleges, and most of the vocational-technical students chose 2-year colleges.

Using longer term follow-up data from the NLS Class of 1972 (4 1/2 years), Eckland and Wisenbaker (1979) indicate that the educational expectations of seniors were strongly related to their educational attainment. As of October 1976, of those who expected to complete high school or less, only 14 percent attended college and fewer than 1 percent obtained a bachelor's degree. Of those who expected to attend graduate school, 94 percent had attended college, and 44 percent of this group had obtained a bachelor's degree or been enrolled in a graduate or professional program.

One change that is evident in students' aspirations and expectations is reflected in the choice of major fields of study. In the 1981 NCES capsule description, a comparison is made between 1972 and 1980 college-bound high school seniors in terms of their plans to enroll in various fields of study (see table 2.4). In 1972, social sciences ranked first, business second, education third, and engineering sixth. As of 1980, business ranked first, engineering second, health services and preprofessional programs were tied for third (8 percent), and education ranked fifth. Social science, which ranked first in 1972, was tied for sixth.

This same 1981 report revealed that pronounced sex differences still exist in choices of planned occupations, but although

TABLE 2.3

PERCENTAGE OF 1980 SENIORS WHO ENTERED POSTSECONDARY EDUCATION WITHIN TWO YEARS AFTER HIGH SCHOOL

Characteristics	Total	Four-Year College	Two-Year College	Vocational-Technical Institutions
All Students:	63%	35%	25%	8%
Male	59	34	23	6
Female	66	36	26	9
Racial/ethnic group:				
Hispanic	52	20	28	9
Black	60	33	20	11
White	64	37	25	7
Asian American	86	51	37	4
American Indian	53	20	22	14
Socioeconomic status:				
High	86	61	27	5
Middle	63	32	27	8
Low	46	19	20	9
Cognitive test performance:				
High	88	69	21	4
Middle	65	33	30	8
Low	40	11	20	11
High school program:				
Academic	86	64	24	5
General	55	24	27	9
Vocational-Technical	44	11	25	11
Region:				
Northeast	63	40	20	8
South	59	34	22	7
North Central	64	38	23	9
West	66	26	38	8

SOURCE: National Center for Education Statistics (1984b).

NOTE: Sum of categories can exceed totals because some students entered more than one type of institution.

TABLE 2.4

PERCENTAGE OF 1972 AND 1980 COLLEGE-BOUND HIGH SCHOOL SENIORS PLANNING TO ENROLL IN VARIOUS FIELDS OF STUDY IN COLLEGE

1972			1980		
Field	Rank	Percentage	Field	Rank	Percentage
Social Science	1	17	Business	1	22
Business	2	13	Engineering	2	10
Education	3	12	Health services	3.5	8
Engineering	6	5	Preprofessional	3.5	8
			Education	5	6
			Social science	6.5	5

NOTE: Seniors in the 1972 class were asked to pick the most similar field if their exact choice wasn't listed, whereas 1980 seniors were instructed to choose the field that came closest to what they would like to study in college.

men still dominate male-oriented fields, female percentages are increasing. Different fields are still frequently preferred by students from the separate high school curriculums. Students from academic programs are more likely to choose engineering and preprofessional programs. Vocational-technical students are more likely to chose business and other related vocational fields. These sex differences and curriculum distinctions were verified in a follow-up study of the 1980 seniors, 2 years after high school graduation (1984). Young men were still more likely than women to enter fields such as engineering (18 percent vs. 3 percent) and physical sciences and math (5 percent vs. 2 percent), and less likely to enter education (3 percent vs. 13 percent) and health fields (2 percent vs. 12 percent). The most popular choices of majors for 1980 seniors who actually entered college were business (27 percent) and engineering (10 percent). Education and other applied fields came in third, followed by health, humanities, and social sciences.

In 1980, relatively few high school seniors (3.5 percent) indicated that they planned to enter the military after graduation. This figure was virtually identical with the 3.4 percent in 1972 (Fetters, Brown, and Owings 1984). Both times of course, males were much more likely to express this interest. The percentage of females, however, doubled from 0.8 percent in 1972 to 1.6 percent in 1980. Immediately following graduation in October 1980, 4 percent of males and 1 percent of females had entered the service. One year later, October 1981, the figure for males had increased to 6 percent. Many of those entering military service were black (12 percent compared to 6 percent among both whites and Hispanics) and tended to score lower on the measures of cognitive ability and socioeconomic status. Given these characteristics, it is of interest that those who entered military service experienced a gain in self-esteem about twice as large as those who pursued other activities (NCES 1984b).

Attitude Shift

Although labor market demand is always going to impact upon occupational choice, it is only partially adequate in explaining the shift in occupational aspirations. Rumberger (1981) points out a growing discrepancy between the aspirations of young people and the availability of jobs to satisfy them, which will make labor market demand an increasingly less viable explanation. Today's seniors seem to be more concerned with making money and less concerned with social issues.

Fetters, Brown, and Owings (1984), in a comparison of the Class of 1972 and the 1980 High School and Beyond seniors, cite significant attitude changes. In 1972, 27 percent felt correcting social and economic inequalities was "very important." By

1980, only 13 percent thought so. Having a lot of money was deemed important in 1972 by only 18 percent. By 1980, this increased to almost 32 percent, with a greater increase among women. However, lest the current youth population be characterized as having a totally mercenary attitude, during the first 2 years after high school, there appears to be a shift toward placing greater importance on family goals (e.g., having children--up 9 points for both males and females; interest in marriage and family life--up 7 points for males and 3 points for females). There is also a corresponding growth in interest in correcting social and economic inequalities (up 4 points for each sex) and a decrease in desire to have a lot of money, with males evidencing a greater decrease (NCES 1984b).

Choosing a Vocational Program

What has been presented to this point has been mainly a review of the career choices and early experiences of high school students during the 1970s and early 1980s. What can we infer from this information about the likely choices and experiences of students during the last half of the 1980s and in the 1990s? Conflicting influences are at work. On the one hand are the reports of the various commissions and tasks forces that were released in 1983 emphasizing more "basics." On the other hand, there is the mismatch between the number of college graduates and the number of jobs that normally require college preparation. The new emphasis in secondary education may make it more difficult for high school students to follow vocational programs, whereas the factors that influence career choices could be leading more students toward such programs.

Virtually all of the reports on secondary education that were published in the past 2 years have stressed the need for greater rigor and quality. The primary result of these reports has been increases in the academic requirements for graduation in most States ("Changing Course" 1985). Although the acquisition of basic academic skills is unquestionably important, the narrowing of the curriculum to a more rigid focus on academics not only makes the choice of vocational programs more difficult for the secondary students (NCES 1984a), it makes it difficult to retain and improve vocational education in the high schools. Additionally, it is not clear how this curriculum change best serves students in our present economy and society (Santos 1984).

As noted in the discussion of career development, the high school years are the period when occupational interests crystallize and career options are evaluated against self-perceptions and educational requirements. The vocational curriculum provides an opportunity for all students, regardless of their postsecondary expectations, to be exposed to a variety of career options.

Given that there are often low levels of commitment to particular occupations during these years, the vocational curriculum particularly serves to influence students with postsecondary goals other than college attendance to remain in school by organizing school resources to coincide with their future plans (Berryman 1980). Berryman provides documentation that vocational programs provide an educational and social niche in the high school for some students. Vocational education is a mechanism by which these students can implement their occupational and educational preferences and channel their capacities and capabilities toward a personally productive adulthood; vocational education provides a future direction with which they can identify. Walker et al. (1982), in a carefully conducted study of secondary students in the State of New York, echo Berryman's conclusion:

> Students report that their half-day occupational programs are a welcome and rewarding alternative to the traditional full-day academic program. Occupational programs encourage better attitudes by both helping students to attain their personal goals and providing experiences of success in a respectful, supporting setting. (p. 88)

Vocational education can also provide an alternative approach to learning for students who do not thrive in the academic classroom for various reasons such as boredom, frustration, or individual learning style differences (National Commission on Secondary Vocational Education 1984). Students vary in the ways they learn best. Some students learn best through the abstract teaching methods used in most academic subjects, whereas the concrete methodology of vocational classrooms is better for others (Pucel 1984). Some evidence suggests that the availability of vocational education at the secondary level has kept some potential dropouts from leaving school (Perlmutter 1982; Mertens, Seitz, and Cox 1982), but the evidence regarding this is somewhat limited (Weisberg 1983).

A major claim of vocational education is that it enables students to apply a wide range of classroom-acquired knowledge and skills in the performance of real-life tasks (Bottoms and Copa 1983). This link between school and the world is what makes education meaningful for many young people. Students develop their abilities, gain confidence through acquired competencies, and receive important immediate feedback on their performance through application of information and skills to current tasks and problems. For a program in which participation is elective and dependent on its ability to attract students, these elements are essential.

The evidence is clear that for some students the vocational classroom provides an inherently more satisfying educational experience. A rational consideration of future options could

also support the choice of the vocational curriculum. As already noted, Campbell and his colleagues (1982) found no net depressive effect of higher participation levels in vocational courses on occupational aspirations. Furthermore, since the early 1970s, the supply of college graduates has exceeded the demand and will continue to do so through the 1980s. Spekke (1976) reports that as many as 2-2.5 college graduates will be competing for every job of the kind usually held by such graduates. The Bureau of Labor Statistics (1982), in Occupational Projections and Training Data, projects a more conservative oversupply than Spekke. It projects that 15 million college graduates are expected to enter the labor force during the 1980s, but the projected employment need will be 12-13 million. Thus, a potential surplus of 2-3 million graduates will be seeking employment, most likely in positions outside their field, and below their degree and earning expectations (Freeman 1976; Rumberger 1981; Bureau of Labor Statistics 1982). As of 1982, one in five college graduates took jobs not appropriate for their education and abilities.

Whether or not this oversupply of college graduates has lowered the economic return on the investment in a college education is a matter of debate among scholars.* The weight of the evidence suggests that throughout the 1970s, the return did decline. Tsang and Levin (1984) even present an extensive econometric model of how "overeducation" may adversely affect productivity. Whatever the explanation, the proportion of high school seniors who planned to obtain a bachelor's degree declined from 1972. More seniors planned either not to enter college or to continue their education beyond the baccalaureate level (see table 2.2).

Using a 7-year follow-up of NLS-72, Kolstad (1982) reports that after leaving high school or college, the wage rates of those with more education catch up with and, within a few years, surpass those with less education. The crossover point between those with college degrees and their noncollege peers differs for men and women (see table 2.5). For women, the crossover point occurs quite soon after college graduation at approximately age 22. For men, the crossover point comes much later at about age 25 or approximately 3 years after college graduation.

These data demonstrate that the advantages immediate work experience gives to men are not as apparent for women. Furthermore, at each age and educational level, women earn less than

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*See the related articles by Rumberger (pp. 99-112), Witmer (pp. 113-120), Schwartz and Thornton (pp. 121-123), and Freeman (pp. 124-142) in the winter 1980 issue of Journal of Human Resources, and articles by Duncan and Hoffman (1981), and Tsang and Levin (1984).

men. The trends in the data suggest that in the long run, for both men and women, the financial returns of a college education may compensate for the costs of schooling and wages lost by not working during the college years.

The aggregate data for all college graduates in table 2.5 obscure differences among fields of study. Postsecondary educators in 2-year institutions have noted a marked increase in the number of students who enroll after acquiring a bachelor's degree. Turner (1980) studied these students in six institutions in Maryland. Three-quarters of his respondents had earned their highest degrees in liberal arts or education, but at the 2-year institutions over half were enrolled in business-related curricula. Using expected earnings as his benefit measure, Turner found a 133 percent rate of return on the cost of the 2-year programs. Analyses for nonresponse and lowered expected earnings reduced this rate to 57 percent. All the results indicate that the total investment in such training yields a positive return for both the individual and society.

Retraining and upgrading of adult workers are likely to become more frequent in this period of rapid change. The pace of change also will increase the difficulty young people have in making career decisions. In future years, they will be faced with more demanding academic requirements in high school and a constantly changing structure of skill needs in the labor market. The ways in which the interplay of these influences is likely to affect career plans and vocational programs at the secondary and postsecondary level are discussed in chapter 4.

TABLE 2.5

MEDIAN HOURLY WAGE RATES BY SEX, AGE, AND EDUCATION

Education Level In 1979 at age 25	Year and Age 1972 18	1973 19	1974 20	1975 21	1976 22	1977 23	1978 24	1979 25
Young Women								
No college:								
Median	3.73	4.07	4.33	4.24	4.27	4.63	4.64	4.57
Number of cases	2073	2294	2312	2459	2412	2684	2757	2817
Less than 2 years of college:								
Median	3.67	4.08	4.42	4.47	4.61	4.93	4.94	5.09
Number of cases	910	1147	1234	1318	1305	1451	1484	1473
Two years or more of college:								
Median	3.48	3.60	4.16	4.47	4.54	4.94	5.11	5.36
Number of cases	554	738	890	1072	1084	1268	1285	1299
Bachelor's degree:								
Median	3.28	3.39	3.32	3.51	4.72	5.30	5.73	6.06
Number of cases	559	814	930	1067	1469	1901	1940	1950
Advanced degree:								
Median	3.49	3.56	3.29	3.55	4.66	6.09	6.38	6.99
Number of cases	59	80	97	109	145	192	205	212
Young Men								
No college:								
Median	4.63	5.42	5.83	5.76	5.95	6.59	6.44	7.06
Number of cases	2139	2311	2517	2763	2796	2996	3049	3078
Less than 2 years of college:								
Median	4.25	5.08	5.55	5.62	5.88	6.24	6.20	6.94
Number of cases	874	1015	1216	1369	1390	1493	1525	1532
Two years or more of college:								
Median	3.76	4.41	4.88	5.06	5.31	5.96	6.20	6.50
Number of cases	801	864	1062	1222	1268	1475	1514	1535
Bachelor's degree:								
Median	3.75	3.78	3.76	3.75	5.08	5.96	6.20	6.86
Number of cases	659	793	942	1066	1436	1946	2001	2035
Advanced degree:								
Median	3.75	4.11	3.78	3.63	5.22	6.26	6.82	7.08
Number of cases	61	76	83	105	147	201	209	227

SOURCE: Unpublished tabulations from the National Longitudinal Study of the Class of 1972.

CHAPTER 3

IMMIGRATION

The economy of a nation can grow in only two ways: either each worker produces more or more workers are added to the labor force. The majority of new additions to the American labor force are the young people who each year complete their education and seek employment. In recent years, there have been fewer such labor market entrants because of the decline in the number of births that began in the mid-1960s. Another but less visible source of new workers is those people who immigrate to this county. The number of immigrants who seek work, however, is uncertain because no one knows how many undocumented immigrants enter the country. There have been many attempts to estimate the number of undocumented aliens. This chapter summarizes some of these attempts and presents the main findings from a detailed analysis of the 1980 census data. This chapter also presents data on documented aliens and immigration to provide a perspective for assessing the magnitude and implications of the estimates of undocumented aliens.

Undocumented Aliens

The interest and concern about illegal immigration to the United States has--in recent months--been heightened by frequent accounts in the news media and by the Simpson-Mazzoli bill to control immigration that was defeated at the end of the 98th Congress. Much of the interest in undocumented immigration stems from the concern about the number of jobs taken by this group and the displacement effect this has on the American labor force and economy. Some have claimed that undocumented immigrant workers contribute to the economic growth of the country by accepting lower wages, which allows for increased industrial investment and expansion. Others argue that the savings from hiring workers for lower wage rates do not necessarily lead to increased industrial investment and expansion, and thus, illegal aliens have an adverse effect upon labor markets in certain regions of the country.

There is little question, however, that undocumented aliens pay income and Social Security taxes. It has been estimated that most of these aliens, because of their fear of detection, never apply for tax refunds or Social Security benefits, resulting in $80 billion annually in payments that will never be collected from the Social Security Administration.

Such estimates, however, must be viewed skeptically. Population analysts are unsure how many undocumented aliens are in the United States, much less how much they pay in taxes and collect in benefits. The many attempts to estimate the number of

undocumented aliens in the country have varied widely as the data in table 3.1 illustrate.

Over the years, some of the methods for estimating the undocumented immigrant population have been sheer conjecture (Robinson 1980). Although estimates of the size of the undocumented population in the country today range anywhere from a low of 100,000 to over 2 million, there are no reliable data to support many of these claims. Estimates that there are over 1 million undocumented aliens in the United States are supported by the number apprehended each year. From 1976 to the present, the number of undocumented aliens apprehended annually in the United States has been about 1 million persons. Unpublished data from the Immigration and Naturalization Service indicate that in 1983 there were 1,251,357 apprehensions, of whom 94 percent were Mexican. Bean, King, and Passel (1983) point out that these are poor estimates of the number of resident aliens because many of the same undocumented aliens are apprehended on more than one occasion.

Much of the concern over undocumented immigration stems from the fear of "an unduly Hispanic United States fifty or one hundred years from now" (Papademetriou and Miller 1983). A shorter term concern, as mentioned earlier, seems to be the effect of undocumented immigration on the American labor market. Fogel (1983) states that most refugees and virtually all undocumented immigrants move into the labor force, primarily in the low-skill and low wage secondary labor markets of larger cities in the United States. Their precarious status prevents them from taking action to improve their wages and working conditions and this adversely affects the labor market for unskilled American workers.

Employers, beginning with the mid-1960s labor shortages, increasingly made use of undocumented immigrants in agricultural and service occupations (Fogel 1983). Of the undocumented aliens who were apprehended in 1983, those who were employed were mostly in agriculture, light industry, and service occupations (table 3.2). The circular flow of both documented and undocumented immigrants in the southwestern United States, mainly of Mexican origin, has always been a "normal" part of the labor force of that part of the country.

Robinson (1980) estimated the undocumented population from a comparative trend analysis of age-specific death rates in five eastern States (New York, New Jersey, Illinois, Michigan, Florida), five southwestern States (Texas, Colorado, New Mexico, Arizona, California), and the remaining States as a group. From this analysis, Robinson concludes that most undocumented aliens migrate to those areas of the United States that are heavily inhabited by similar ethnic groups where they are less likely to arouse immigration authority suspicion and less likely to be apprehended.

TABLE 3.1

ESTIMATE OF UNDOCUMENTED ALIENS RESIDING IN THE UNITED STATE DURING THE 1980S

Date of Estimate	Number of Undocumented Aliens (in millions)	Source
1970	1.6[a]	Goldberg (cited in Robinson [1980])
1972	1.0	Farrell (cited in Robinson [1980])
1973	3.9[b] (2.9-5.7)	Lancaster and Scheuren (cited in Robinson [1980])
1975	4-12	Chapman (cited in Robinson [1980])
	8.2	Lesko Associates (cited in Robinson [1980])
	0.4-1.2[c]	Heer (cited in Robinson [1980])
1976	6	Guss (cited in Robinson [1980])
	6-8	Chapman (cited in Robinson [1980])
1978	3-6	Castillo (cited in Robinson [1980])
	3.5-5	Keely (1982)
1980	.1-.75	Papademetrion and Miller (1983)
	2.0[d]	Passel and Woodrow (1984)

NOTE: Years in parentheses represent publication date.

[a]Estimate is for Mexican-origin population only.

[b]Estimate is for ages 18-44. The numbers in parentheses represent roughly 68 percent confidence limits.

[c]Estimates represent net undocumented immigration of the Mexican-origin population over the 1970 to 1975 period. Heer's preferred estimate is 0.6 million.

[d]Undocumented aliens counted in the 1980 census of the United States.

TABLE 3.2
APPREHENDED, UNDOCUMENTED ALIENS
BY INDUSTRY OF EMPLOYOMENT

Heavy Industry	5,111
Light Industry	40,248
Agriculture	92,550
Construction	22,508
Service	28,248

SOURCE: Immigration and Naturalization Service, unpublished data.

The best recent estimates of undocumented aliens have been made by Passel and Woodrow (1984) using data from the 1980 census. The following discussion draws primarily upon their estimates. Passel and Woodrow present a number of comparisons and patterns that suggest these estimates are a lower bound for the actual number of undocumented aliens and that the coverage was "reasonably complete" (p. 20).

As table 3.3 indicates, undocumented aliens are concentrated mainly in California and in certain southern and Mid-Atlantic States. There is considerable clustering, with large gaps between California and the other four States with the heaviest concentrations of undocumented aliens, and between these five and all the rest. The undocumented alien population is primarily in the most populated States and those States containing heavy concentrations of legal resident aliens. The 10 States listed in table 3.3 account for 88 percent of the total numbers of undocumented aliens counted in the 1980 census.

Since most undocumented aliens migrate to the United States to escape the economic hardships in their country of origin, one would presume that most of these individuals are at least 18 years of age and older. The data in table 3.4 are estimates of the age composition of undocumented aliens counted in the 1980 census for the 10 States with the largest concentration of these individuals. Almost two-thirds of the undocumented population residing in these States falls between the ages of 15 and 34. The remainder is almost equally divided between those individuals under 15-35 years of age and over.

TABLE 3.3

ESTIMATES OF UNDOCUMENTED ALIENS
COUNTED IN THE 1980 CENSUS
10 LARGEST STATES

	Estimated Number (thousands)	Percentage of Total	Percentage Each State's Total Population
California	1,024	49.8	4.3
New York	234	11.4	1.3
Texas	186	9.0	1.3
Illinois	135	6.6	1.2
Florida	80	3.9	0.8
New Jersey	37	1.8	0.5
Virginia	34	1.7	0.6
Maryland	32	1.6	0.8
Arizona	25	1.2	0.9
Washington	22	1.1	0.5
All others	248	12.1	0.2
TOTAL	2,057	100.2	0.9

SOURCE: Passel and Woodrow (1984, p. 29).

TABLE 3.4

AGE COMPOSITION OF ESTIMATED UNDOCUMENTED
ALIENS COUNTED IN THE 1980 CENSUS
10 LARGEST STATES

State	Under 15 Years (Percentage)	15-34 Years (Percentage)	35 Years and Over (Percentage)
California	20	63	18
New York	11	56	33
Texas	20	67	11
Illinois	16	65	19
Florida	16	56	28
New Jersey	15	56	30
Virginia	19	52	30
Maryland	18	50	32
Arizona	24	62	15
Washington	17	67	16
All states	18	62	20

SOURCE: Passel and Woodrow (1984, p. 34).

Even though the number of undocumented aliens in the 15 and under age group represents a fairly small percentage of the total population of undocumented aliens, they are squeezing State and local revenues for educational and medical services in heavily impacted areas ("Closing the Door" 1984). A ruling of the U.S. Supreme Court in 1982 concluded that the children of undocumented aliens could not be barred from public schools. The State of Texas alone in 1982 estimated its costs for educating undocumented alien children at $85 million (Ibid. 1984). In California, with a much higher concentrations of undocumented alients (see table 3.3), the costs are undoubtably higher.

Table 3.5 presents estimates of undocumented aliens counted in the 1980 census by origin. Over half of the undocumented aliens are Mexican by origin who, as stated earlier, migrate primarily to California (763,000), Texas (147,000), and Illinois (101,000). There are three classifications of Caribbean and Central American countries in the original data combined in table 3.5 to yield 16 percent of the total. Immigrants from these countries primarily reside in New York (128,000), California (83,000), and Florida (33,000). The next largest group comes from Asia, representing about 10 percent of the total undocumented immigrants in United States. This group also heavily migrates to California (84,000), but substantial numbers also are found in New York (22,000), Texas (15,000), Virginia (11,000), and Illinois (10,000). There are four other States, not among the five dominant ones, that have over 10,000 undocumented aliens from one country. Arizona, Colorado, New Mexico, and Washington are estimated to have 10,000 or more undocumented aliens from Mexico.

TABLE 3.5

ESTIMATES OF UNDOCUMENTED ALIENS COUNTED
IN THE 1980 CENSUS BY REGION OR COUNTRY OF BIRTH

Region or Country of Birth	Number (Thousands)	Percentage
Mexico	1,131	55
Central American and Caribbean	324	16
Asia	213	10
Europe	150	7
South America	128	6
Africa and Oceania	86	4
Canada	25	1
TOTAL	2,057	100

SOURCE: Passel and Woodrow (1984, p. 30)

The National population of undocumented aliens includes more males than females. The sex ratio (number of males to females) for all States is 1.14, or 53 percent male (table 3.6). The States of Texas, Illinois, and Washington all have a high proportion of males to females, because most of the undocumented populations in these States are Mexican, who as a group, are 55 percent male. The undocumented alien population concentrated in Western States is predominately male and between the younger working ages of 15-34. In contrast, the Eastern States have more females than males. For example, in the State of Maryland, the undocumented alien population includes only 85 males for each 100 females. Over all age categories, the sex ratio is highest for the 15-34 year old group, comprised of 55 percent male when viewed across all States. Females are more common in the 35 years and older age group of undocumented aliens across all States and in 8 of the 10 largest States, except for Illinois and Washington.

According to Passel and Woodrow the age composition of undocumented aliens from Mexico suggests that during the period from 1975-1980, there tended to be fewer individuals over age 35 years and larger numbers of individuals under 15 years than in earlier periods. This further suggests that larger numbers of intact families have entered the United States more recently from Mexico, and are residing in the southwestern part of the country, mainly California. Since it appears virtually certain that the labor supply in Mexico will greatly exceed the demand for labor, the trend of younger illegal immigration to the United States will in all likelihood continue.

Documented Aliens

National concern and media attention are naturally directed to illegal immigration. As a Nation, we have no control over the number or characteristics of aliens who enter the country illegally. The obvious impact that these undocumented aliens are having in certain geographic areas tends to heighten concerns about the "absorptive capacity of the American society" (Keely 1982, p. 32). How many individuals from different cultures can we accommodate before there is a serious threat to the shared values that hold our society together?

Undocumented aliens, however, are only one side of the coin. If the Passel and Woodrow (1984) estimates of undocumented aliens are reasonably accurate, there are far fewer undocumented than documented aliens residing in the United States. Table 3.7 presents the relevant figures on registered aliens for a time period roughly comparable to the 1980 census figures used by Passel and Woodrow.

TABLE 3.6

RATIO OF MALES TO FEMALES AMONG UNDOCUMENTED
ALIENS COUNTED IN THE 1980 CENSUS,
BY SELECTED AGE GROUPS
10 LARGEST STATES

State	All Ages	Under 15 Years	15-34 Years	35 Years and Over
California	1.15	1.04	1.26	.94
New York	.86	1.16	.87	.76
Texas	1.23	1.09	1.37	.78
Illinois	1.34	1.03	1.43	1.31
Florida	.97	1.23	.99	.82
New Jersey	.86	1.02	.92	.70
Virginia	1.09	1.15	1.19	.90
Maryland	.85	.86	.84	.86
Arizona	.99	1.01	1.10	.61
Washington	1.70	1.48	1.83	1.47
All states	1.14	1.07	1.24	.93

SOURCE: Passel and Woodrow (1984, p. 34).

TABLE 3.7

RESIDENT ALIENS REPORTING ADDRESSES DURING 1980;
IMMIGRANTS ADMITTED AND PERSONS NATURALIZED
DURING FISCAL YEAR 1981

Region of Country of Birth or Former Allegiance	Resident Aliens Number (Thousands)	Resident Aliens Percentage	Immigrants Admitted Number (Thousands)	Immigrants Admitted Percentage	Person Naturalized Number (Thousands)	Person Naturalized Percentage
Asia	1,331	25	264	44	74	45
Europe	1,286	24	67	11	32	19
Mexico	1,059	20	101	17	10	6
Caribbean and Central America	788	15	97	16	32	19
Canada	338	6	11	2	3	2
South America	279	5	36	6	10	6
Africa and Oceania	82	2	19	3	3	2
Other	218	4	2	*	2	1
TOTAL	5,381	101[a]	597	99[a]	166	100

SOURCE: 1981 Statistical Yearbook of the Immigration and Naturalization Service, pp. 39-44, 47-49, 67-69).

*Less than 1/2 of 1 percent.

[a]Total differs from 100 due to rounding.

In January of each year, resident aliens are required to report their current addresses to the Immigration and Naturalization Service. The number who reported in 1980 was 5.4 million. The 1980 census count of foreign-born persons was 14,079,906, of whom 50.5 percent reported themselves to be naturalized citizens (U.S. Department of Commerce 1984). The unnaturalized aliens thus numbered 6,969,554, somewhat higher than the number who reported their addresses in January 1980. During the fiscal year following the census, over a half million more aliens were legally admitted to the country. From among the resident aliens, 66,000 were naturalized as citizens and would not be counted as aliens in future years. Using either the census count of foreign-born persons or the Immigration and Naturalization Service figures yields a total of over 6 million registered aliens at the end of the 1981 fiscal year. This total is sharply higher than the 2 million undocumented aliens estimated by Passel and Woodrow.

If concerns about the potential impacts of immigration were driven by numbers, there would be far more debate about legal immigration than illegal immigration. As was demonstrated in the previous section, a few States are the primary recipients of immigrants, both legal and illegal. It would be easy to argue that these States deserve assistance from the Federal Government in dealing with the demands upon their public services caused by immigrants. A modest level of assistance, $30 million in 1985 and $40 million for the next 4 fiscal years, is authorized for emergency immigrant education assistance by Title VI of the Education Amendments of 1984 (P.L. 98-511). With the present financial situation of the Federal Government, however, whether even this will be appropriated is uncertain. The areas that are receiving large numbers of immigrants are going to have to deal with them as best they can. The specific implications for vocational education are discussed in the next chapter.

CHAPTER 4

IMPLICATIONS

As is obvious to even the most casual observer, education is in the midst of major ferment. The period since World War II has seen three major initiatives in education: mathematics and science following Sputnik, access and equal opportunity as part of the civil rights and women's movement, and career education. None of these previous emphases, however, have generated the degree of involvement by noneducators as the current reform movement. In its issue of February 6, 1985, Education Week published the results of a National survey. This survey

> suggests that in the last two years, the drive to improve schools has generated an unprecedented level of legislative and policy making activity in the states.
>
> Since the excellence movement began almost all of the 50 states have acted to raise high school graduation requirements and institute statewide student assessment tests. (Bridgman 1985, p. 1)

This ferment reflects the continuing tension between the two major functions of education and the uncertainty of a time of rapid change. Education is expected by our society to provide opportunities for all individuals to achieve their maximum potentials. While providing these opportunities, however, education is also expected to perform a somewhat conflicting function: education must select, prepare, and certify individuals to perform a variety of future occupational roles. Some of this selection-certification process is formalized as in the admission of individuals to college or professional training and in the licensure of certain occupations. Much more of this function, however, is not specified. It exists in the form of cultural expectations of education that are held by the other institutions of our society.

The most basic of these expectations is that education will impart the minimum literacy and computation skills needed for an advanced technological society. Much of the current emphasis on education reform can be traced to a widespread concern that education is not meeting this basic expectation. In too many cases, the award of the high school diploma does not signal the attainment of basic competencies. As educators focused on increasing access to opportunity, the selection-certification function received less attention. National concern about the decline in student performance was heightened by the strains our economy was experiencing as it attempted to respond to increased international competition and rapid rates of technological change. The many calls for higher standards, more basics, and excellence can be interpreted as a need to reemphasize the selector-certifier function of education.

This reemphasis is reflected most directly in the increases in graduation requirements that have been implemented in 43 States and are under consideration in 5 more ("Changing Course" 1985). These increases have been either in additional required credits in English, mathematics, science, and social science or in specified performance levels on competency tests, or in both.

These increases will undoubtedly be the main influence on vocational education in the near future. The direction their influence will take depends on how they are implemented. If more English, mathematics and science are taught in the traditional fashion, students who already find these classes boring and frustrating will not remain in school for more of the same. If, instead, credit in these areas can be acquired in an applied setting where the relevance of the skills is emphasized, students will be retained and the instruction is likely to be more effective.

The increases in academic standards, together with the emphasis on service to special needs population in the new Perkins legislation, could serve to funnel an increasing proportion of academically deficient students into vocational courses. These students will require additional remedial instruction if they are to complete high school. An increase in the number of these students is likely to put further emphasis on the general education component of vocational classes.

Increases in the proportion of academically deficient students could also reinforce the "dumping ground" image that has long plagued secondary vocational education. This is the perception that vocational training is appropriate only for those who cannot meet the requirements of the "more demanding" academic curriculum. The reality is that students who take vocational programs perform about the same as students in general programs on measures of academic achievement. Both of these groups, however, do perform well below the average of students in college preparatory programs (Corman 1980; Lotto 1983; Weber et al. 1983). If this image, is to be counteracted, vocational educators must ensure that their students demonstrate proficiency in basic skill areas.

The convergence of these influences virtually ensure that secondary vocational programs will change. Vocational education will either be increasingly squeezed out of the secondary curriculum, or it will assume an increased and explicit responsibility for ensuring that all secondary students are competent in the skills expected of high school graduates. The often-repeated claim "We have always done that" will not be sufficient. It will be necessary to demonstrate the instructional materials and methods by which English, mathematics, and science are taught and reinforced in vocational courses. And, the skills of vocational

students will have to be shown to increase as a result of such instruction. If there is one message from the past 2 years of education ferment, it is that the American people want their high schools to do better. Vocational education must show how it can help high schools do better, or it will not continue as part of the secondary curriculum.

Career Plans

It is ironic that the educational reforms currently being carried out basically constitute a strengthening of the college preparatory curriculum at a time when the need for more college graduates is increasingly questioned. President Reagan's proposal to limit Federal aid for higher education to $4,000 per year, and only to families with incomes below $32,500 (Hertling 1985) is based partially on a desire to lower Federal expenditures, but also on the analyses that show there is an oversupply of college graduates in relation to the number of jobs that traditionally have required college preparation.

Comparisons of the post-high school plans of seniors in the early 1970s and 1980s indicate a rather large drop (12-15 percentage points) in those who planned to end their education with a bachelor's degree.* Most of this drop is attributable to a 7-10 percentage point increase from 1972 to 1982 among males who planned to go no further than high school and an increase of similar size among females who planned to continue beyond the bachelor's degree in graduate or professional school.

These figures suggest that the oversupply of holders of bachelor's degrees may be influencing the educational plans of high school students. The decision to attend college, however, is not solely, or perhaps even mainly, an economic one. There are many cultural, parental, civic, and even health benefits associated with increased education (Haveman and Wolfe 1984). Parents who have college degrees typically expect and encourage their children to attend college. In the 1960s and 1970s, there was a major increase in the percentage of the population that completed college. In 1960, 7.7 percent of individuals 25 years of age and over were college graduates. In 1980, the figure was 17 percent. The percentage of college graduates among younger people who are of the the prime child-rearing ages is even higher (U.S. Bureau of the Census 1983).

The main influences acting upon the educational decisions of young people in the near future are thus likely to be--

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*These figures are presented in detail in table 2.2 in chapter 2.

- an expectation and emphasis on college among a large proportion of parents, especially those who attended college themselves;

- more rigorous curriculum requirements that are increasingly oriented to college preparation;

- less Federal assistance to pay college expenses for families whose incomes are significantly above the National median.

The projections of future job opportunities made by the U.S. Bureau of Labor Statistics (1984) show most growth in service jobs that require relatively little preparation. If these projections prove accurate, two additional influences on educational decision will be--

- increasing competition for the kinds of jobs usually held by college graduates and

- declining economic return on the cost of a college education.

These conflicting influences shall undoubtedly work themselves out in different ways for different people. In general, however, it seems that the student who is only marginally interested in college is less likely to pursue a 4-year degree. These will be a potential source of increased enrollments in postsecondary vocational-technical programs.

College graduates who obtained their degrees in nontechnical fields are another potential source of increased postsecondary students. The oversupply of graduates has depressed the starting salaries offered to graduates in nontechnical fields. As these graduates found their degrees did not lead to jobs of the type and rewards they expected, many returned to 2-year institutions for technical training. The conditions that led these graduates to seek such training are likely to continue for the next several years and could result in increased enrollments among bachelor's degree holders.

Immigration

The evidence presented in chapter 3 shows that immigration is a significant source of new workers, that there are more documented aliens living in this country than undocumented ones, and that the major sources of undocumented aliens are Mexico and countries of the Caribbean and Central America. Almost three-quarters (71 percent) of all undocumented aliens estimated to have been counted by the 1980 census are from this region. Mexico, alone, is the source of over half.

The evidence is unclear whether the net effect of these immigrants, both documented and undocumented, is positive or negative for the country as a whole. Their tendency to settle in a few States may put extra demands on the social services in these States, but the evidence is equivocal. The conventional wisdom is that undocumented aliens tend to avoid involvement with public agencies because of fear of deportation, but here again little reliable data are available.

On one point there is little dispute: as long as the economic conditions in the United States are markedly better than in nearby Latin American countries, natives of those countries will be attracted to the United States. Unless this country is willing to adopt some type of National identification card or to impose sanctions on employers for hiring undocumented aliens, there is relatively little that can be done to discourage illegal immigration. To date, the problem has not been perceived as acute enough by enough people to make these actions politically feasible. The Simpson-Mazzoli bill tried to impose employer sanctions, but there was not sufficient support for its passage.

The focus of this chapter is on implications for vocational education. With so little known about aliens, their needs, and their willingness to use public services, it is difficult to draw implications. The following might better be considered speculations than implications.

It is not anticipated that the first generation of immigrants is likely to make any significant use of vocational programs. They tend to be poorly educated, to speak little or no English, and to take jobs in the secondary labor market that require no previous training or experience. In those areas of the country with sizeable concentrations of immigrants, native-born Americans may be displaced from these secondary labor market jobs. To the extent Americans are displaced, this may produce an increased demand among them for training to prepare for better jobs in the primary labor market. The workers who typically compete for jobs in the secondary labor market, however, do not as a rule participate in training programs, except for those targeted to disadvantaged populations.

The major question, therefore, involves vocational education's role in the education of the children of immigrants, particularly Hispanic immigrants. Here the debate has focused on language, which relates directly to the concerns about an "unduly Hispanic United States" (Papademetriou and Miller 1983) and the "absorptive capacity" of our society (Keely 1982). On one side of this debate are those who believe that instruction in any language other than English is a threat to the shared values that hold our society together. On the other side are those who think English instruction handicaps Spanish-speaking students and denigrates the value of the Spanish language and Hispanic culture.

A recent report by the National Commission on Secondary Schooling for Hispanics (1984) contends that this debate has diverted attention from other educational issues for Hispanics. The National Commission recommends several approaches to develop bilingual ability in Spanish-speaking students. It notes that many regions of the country need workers who are literate in both English and Spanish. As the work force of the United States moves progressively out of manufacturing and into service industries, the need for bilingual workers will increase. This will be intensified as the United States becomes more an exporter of services and information and less an exporter of goods. The major barrier to the emergence of the United States as the prime source of information in the postindustrial society could well be our insistance that all the peoples of the world speak to us in English. Our Spanish-speaking young people could be one of our most important resources in future years if we prepare them properly.

Policy Suggestions

The following are suggestions that planners and policymakers in vocational education may want to consider as they attempt to design programs to respond to future educational and employment needs. They are labeled suggestions rather than recommendations because the information yielded by an environmental scan does not lead directly to recommendations. This information must be considered in the context of the strengths and weaknesses of particular institutions and the opportunities and threats in the specific environments of those institutions. This report presents a National perspective that must be evaluated against the conditions in individual States and localities before goals are set and plans are developed.

Education Reform

The surest way to ensure the weakening and eventual demise of vocational education at the secondary level would be to try to ignore the educational reform movement and attempt to continue business as usual. Forty-eight States do not change or consider changing their standards for high school graduation unless there is broad, grassroots support for such action. A Nation at Risk did not cause this support; it reflected and focused it.

The American people are insisting that their schools teach the fundamental level of literacy and computational skills needed for a complex society. Vocational education must make the case that it not only contributes to attainment of those skills but that it does it better for some students than the traditional academic curriculum. This argument dates back at least to the

manual training movement of the late 19th century and is explicitly stated in the 1914 report of the Commission on National Aid to Vocational Education (1974):

> Vocational training will indirectly but positively affect the aims and methods of general education: (1) by developing a better teaching process through which the children who do not respond to book instruction alone may be reached and educated through learning by doing; (2) by introducing into our educational system the aim of utility, to take its place in dignity by the side of culture and to connect education with life by making its purposeful and useful. (p. 117)

The most recent restatement of this position is contained in The Unfinished Agenda, the report of the National Commission on Secondary Vocational Education (1984). Vocational educators can use this report to present the case for secondary vocational programs with school board members, legislators, employers, and the general public. More than this, however, they must demonstrate in convincing fashion that vocational instruction makes a contribution to the attainment of general education goals. All vocational educators are convinced that it does; they now must prove it to the skeptics.

Program Improvement

The influences that are converging on vocational education indicate that future growth in enrollments will be at the post-secondary level:

- In most States, the number of students at the secondary level will continue to decline until the mid-1990s.
- Increases in academic requirements are making it more difficult to schedule vocational courses at the secondary level.
- There is an apparent decline in the number of students, particularly males, who plan to persue a 4-year college program
- Rapid rates of technological change are causing a need for upgrading and retraining.

The new Federal legislation for vocational education has eliminated expenditures for program maintenance; all expenditures must be for targeted special needs populations or for program improvement. The influences to which vocational education must respond suggest that program improvement funds could best be used to

strengthen the general education component of secondary programs and the occupational training capacity of postsecondary programs.

If this suggestion were followed at the secondary level, it would lead to efforts to relate vocational instruction explicitly to literacy and computational skills and the scientific and technological principles that are the basis of many occupational areas. This could lead to the development of instructional materials to supplement traditional occupational instruction, and, perhaps most important, inservice training for teachers to increase their skill and confidence in their ability to reinforce general educational goals.

The course that is being suggested will not be easy. There will be resistance on the part of general educators who will argue that communication and computational skills must be taught by teachers who are certified to teach them. There will be resistance from vocational educators who will argue that general education is not their responsibility or strength.

Despite this resistance, greater integration of general and vocational instruction at the secondary level appears virtually inevitable. Many students already bored and frustrated in academic classes will not stay in school to take more of the same, but our society is unlikely to tolerate a major increase in school dropouts. Educators will be forced both to provide a more rigorous education and to retain students. For many students, this will require explicit efforts to teach general skills in the practical, relevant setting a vocational classroom provides.

Although these changes are threatening to many because they challenge established practices, they should lead to a more rational and less duplicative division of responsibilities between secondary and postsecondary vocational programs--a division that is congruent with what many of the leading scholars of education and training programs have long advocated. Pratzner and Russell (1984) reached the following conclusions from a review of the writing of these scholars coupled with a Delphi study of several of them:

> There is a growing consensus among an increasing number of knowledgeable people that the economic, technological, demographic, and educational conditions in the Nation require secondary and postsecondary-level vocational programs to serve different roles and functions. The consensus among this group, though by no means clear and widely articulated, is that vocational education at the secondary level should be integrated better with general education and that emphasis should be on the development of broadly applicable skills useful to students in a wide range of future occupations.

> At the postsecondary level, the dominant theme seems to be that programs should expand their capacity to serve a broader clientele and a broader range of training needs. By and large, postsecondary institutions are imaged to work more closely with business and industry to emphasize and improve programs developing highly specialized skills especially those needed in new and emerging occupations in the sevice sector and in high-technology areas. (pp. 39-40)

Implementing this approach at the postsecondary level could take the form of efforts to ensure that programs keep pace with technological developments. This does not necessarily mean acquiring the latest state-of-the-art equipment, which changes very rapidly. Training on such equipment can be obtained in a more cost-effective manner through cooperative placements. Instead, it may mean firmer grounding in the science and technology incorporated in the equipment. A sound foundation in basic principles will develop workers who can respond to future technological changes that at present cannot in anyway be anticipated.

There are at present efforts toward implementing many of the ideas contained in these suggestions. Prominent among these is the Principles of Technology curriculum being developed by the Center for Occupational Research and Development and the Agency for Instructional Technology (n. d.). Funding is being provided by the vocational education agencies of several U.S. States and Canadian Provinces. This curriculum is designed for the 11th and 12th grade to teach technical principles and concepts, improve science and mathematics skills, and provide hands-on laboratory experience. It teaches such principles as force, work, and resistance as they apply in four kinds of systems: mechanical, fluid, thermal, and electrical. Dale Parnell (1984), president of the American Association of Community and Junior Colleges sees instruction such as this as the first "2" of a "2 + 2" program. The second "2" would take place at the postsecondary level and would focus on the application of these principles in specific occupational areas.

Special Needs Population

Program improvement, however, cannot be limited to curriculum innovations. Under the new Carl Perkins Vocational Education Act, 57 percent of the basic State grant is targeted to 6 specified special needs populations. Some vocational administrators are complaining that this degree of specificity limits their ability to direct funds to areas of greatest need. The new legislation, however, reflects congressional intent to focus the Federal role on a more limited number of objectives. There is

abundant evidence to support such a focusing. The unemployment and labor force participation rates among minority teenagers are prominent examples.

More must be done to help those who enter our educational system ill-prepared to perform in the manner required for any modest degree of success. Young people who do not receive in their homes the preparation needed for acceptable performance in the mainstream institutions of our society must receive such preparation in the school, the other principal institution responsible for their development. Vocational education is not, of course, the sole answer. Preparation must start early and be continuous. Early intervention, such as Head Start, has been shown in the Perry Preschool experiment in Ypsilanti, Michigan (Berrueta-Clement et al. 1984), to have long-term effects on educational attainment, employment, and delinquency. The evidence from the National Assessment of Education Progress indicates that the reading and mathematics achievement of the most disadvantaged students increased the most during the past 15 years (NCES 1983, 1984a). Vocational education can help to reinforce this improvement by stressing literacy and computational skills. It can also help students acquire those work discipline and dependability traits that employers see as fundamental to all jobs (Hollenbeck 1984). For some students, this will require program modifications such as special tutoring, lower student-teacher ratios, and greater emphasis on work-study programs, but that is the purpose of Federal funds. Vocational educators should have little trouble in findings ways to spend them.

With regard to Hispanic students, the evidence assembled for this report does not support efforts to provide Spanish language curriculum and instruction in vocational programs. As was noted in the discussion of immigration implications, the impact on schooling is likely to be from the children of immigrants not from the immigrants themselves. Spanish-speaking citizens can be a valuable National resource if they are literate in both English and Spanish. There should be continuous efforts throughout the elementary and secondary levels to develop facility in both languages. Those students who reach vocational programs still deficient in English could best be served by extensive bilingual tutoring, which would achieve the dual objectives of teaching both occupational and English skills. This approach is consistent with Title II of the Education Amendments of 1984 (P.L. 98-511) that amends the Bilingual Education Act (P.L. 95-561) and states as National policy:

> The Federal Government has a special and continuing obligation to assist language minority students to acquire the English language proficiency that will enable them to become full and productive members of society. (Sec. 702 (a)(4))

APPENDIX

MAJOR INFORMATION SOURCES

Federal Government

Congress of the United States
- Congressional Budget Office
- Congressional Clearinghouse on the Future
- Office of Technology Assessment

Office of the President
- Council of Economic Advisers
- Office of Management and Budget

Department of Commerce
- Bureau of Census
- Bureau of Economic Analysis
- Bureau of Industrial Economics

Department of Education
- National Center for Education Statistics

Department of Labor
- Bureau of Labor Statistics

Other Sources

Futures Research Journals
- Futures
- The Futurist
- Future Survey
- Journal of Forecasting

Education Sources
- Education Daily
- Education Week
- Educational Evaluation and Policy Analysis
- Educational Researcher
- Phi Delta Kappan
- Review of Educational Research
- VocEd

Business Publications
- American Demographics
- Business Week
- Trade journals serving selected technologies

Technology Journals
- Discovery
- Research and Development
- Science and Technology for the Executive
- Technology Review

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